

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte FREDERICK L. LICHTENFELS, II

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Appeal No. 1999-0245  
Application No. 08/720,268

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ON BRIEF

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Before COHEN, BARRETT, and CRAWFORD, Administrative Patent Judges.  
COHEN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 through 5, 8, 11, 14, 16, 18, 19, and 21. Claims 6, 7, 15, 17, 22, and 23 stand withdrawn from consideration; 37 CFR 1.142(b). These claims constitute all of the claims remaining in the application.

Appellant's invention pertains to an apparatus for determining liquid level in a container, to a method for determining liquid level in a container without the use of a

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stillwell, and to liquid gauging apparatus for an aircraft fuel tank. A basic understanding of the invention can be derived from a reading of exemplary claims 1, 11, and 16, respective copies of which appear in the APPENDIX to the main brief (Paper No. 17).

The following rejections are before us for review.

Claims 1 through 5, 8, 11, 14, 16, 18, 19, and 21 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.<sup>1</sup>

Claims 1 through 5, 8, 11, 14, 16, 18, 19, and 21 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter lacking description in the specification.

Claims 1 through 5, 8, 11, 14, 16, 18, 19, and 21 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which is not enabled by the specification.<sup>2</sup>

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<sup>1</sup> We have included claim 19 in this rejection, which claim appears in the final rejection (Paper No. 14; page 4), but was omitted from the statement of the rejection in the answer (Paper No. 18; page 4).

<sup>2</sup> This rejection was a new ground of rejection set forth in  
(continued...)

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The full text of the examiner's rejections and response to the argument presented by appellant appears in the main and supplemental answers (Paper Nos. 18 and 20), while the complete statement of appellant's argument can be found in the main and reply briefs (Paper Nos. 17 and 19).

#### OPINION

In reaching our conclusion on the indefiniteness, description, and enablement issues raised in this appeal, this panel of the board has carefully considered appellant's specification,<sup>3</sup> drawings, and claims, and the respective viewpoints of appellant and the examiner. As a consequence of our review, we make the determinations which follow.

This panel of the Board fully comprehends the examiner's well stated point of view relative to each of the respective rejections on appeal, as set forth in the main and supplemental

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<sup>2</sup>(...continued)  
the answer (Paper No. 18; page 7), and responded to by appellant in the reply brief (Paper No. 19; pages 3 through 9).

<sup>3</sup> A patent to Trudeau (U.S. Patent No. 5,400,376) is expressly incorporated by reference (specification, page 6) into appellant's disclosure, which patent we make reference, infra.

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answers. However, for the reasons articulated below, we cannot sustain any of the rejections.

### Indefiniteness

We do not sustain the rejection of claims 1 through 5, 8, 11, 14, 16, 18, 19, and 21 under 35 U.S.C. § 112, second paragraph, as being indefinite. Specifically, the examiner considers claims 1, 11, and 16 to be confusing and/or incorrect relative to a determination of liquid level in light of appellant's specification. As to claim 8, it is the examiner's view that the claim is incorrect since the specification does not set forth a control electronic means causing a transducer to transmit acoustic energy "in short pulses and at a repetition rate", as claimed.

At this point, we note that a decision as to claim indefiniteness requires a determination whether those skilled in the art would understand what is claimed. See Amgen Inc. v. Chugai Pharmaceutical Co., 927 F.2d 1200, 1217, 18 USPQ2d 1016, 1030 (Fed. Cir. 1991). Moreover, claim language must be read in

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light of the specification as it would be interpreted by one of ordinary skill in the art. See In re Moore, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971).

In the present case, as more fully explained below, we readily discern that those skilled in the art of using acoustic energy to determine liquid level in a container or tank would understand the subject matter of claims 1, 11, 16, and 8, in particular, when the language at issue in those claims is read in the context of the disclosure of the underlying specification and the prevailing knowledge in the art.

As expressly acknowledged in the background section of appellant's specification (page 1), the use of acoustic transmitters for determining fluid levels in containers is well known. The Trudeau patent, incorporated by reference into appellant's specification, particularly evidences the depth of knowledge and high level of skill of those practicing this art. As to the content of claims 1, 11, and 16 at issue, appellant points out (main brief, page 20) that the circuit function of determining level based on echo amplitude and delay is "very old and well recognized in the art" and, therefore, is "not only

correct but also cannot be confusing to those skilled in the art." Further, appellant asserts (main brief, page 20) that the language of concern to the examiner in claims 1, 11, and 16 is "nothing more than a recitation of the circuit functions conventionally used in ultrasonic gauging systems."

In light of appellant's background discussion and disclosure,<sup>4</sup> the detailed, incorporated Trudeau disclosure,<sup>5</sup> and appellant's indicated acknowledgment on the record as to conventional practice in the ultrasonic fluid level sensing art,

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<sup>4</sup> As background (specification, page 1), appellant describes the knowledge in the art of ultrasonic fuel level sensors for detecting surface levels of fuel in a tank using echo ranging. More specifically, an ultrasonic pulse on the order of 1 megahertz is emitted and reflected at the fuel/air interface and returns in the form of an echo pulse. The round trip time from pulse emission to echo detection can be correlated with the fuel height when the velocity of the acoustic pulses in the fuel is known and, thus, corresponds to the distance of the liquid surface from the sensors. Appellant also points out (specification, page 7) that the maximum amplitude echoes are selected as the true surface echo.

<sup>5</sup> The Trudeau disclosure explicitly describes the knowledge in the art of fuel gauging systems (microprocessor or state machine control) with 10 or 20 ultrasonic level sensors for detecting surface levels in a tank using echo ranging and ultrasonic pulses on the order of 1 megahertz, and with the systems taking into account the time elapsed between an ultrasonic pulse being transmitted from a particular sensor and the resultant echo being received.

it is quite clear to us, as earlier indicated, that those skilled in the art would have understood what was known in the art that supported the means plus function language at issue in claims 1, 11, and 16, i.e., means for determining liquid level height based upon echo amplitude and time delay. Thus, we determine that claims 1, 11, and 16 are definite.

It is also our conclusion that the content of claim 8 is definite in meaning. Contrary to the examiner's viewpoint, and akin to appellant's understanding (main brief, page 20), we consider the language of claim 8 to be definite in that one having skill in the art at issue would comprehend, on the basis of the underlying specification and the Trudeau teaching,<sup>6</sup> what was encompassed by a control electronic means activating a transducer to transmit acoustic energy "in short pulses and at a repetition rate that is high relative to liquid surface disturbances", as claimed.

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<sup>6</sup> On pages 4 through 6 of the present specification, a higher repetition rate of transmitted acoustic energy (pulses) is described to compensate for a rough or turbulent surface, while the Trudeau document discusses repeated interrogation (repetition rate) of sensors (column 3, lines 51 through 54).

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Description

We do not sustain the rejection of claims 1 through 5, 8, 11, 14, 16, 18, 19, and 21 under 35 U.S.C. § 112, first paragraph, as containing subject matter lacking description in the specification.

The test for determining compliance with the written description requirement is whether the disclosure of an application as originally filed reasonably conveys to an artisan that an inventor had possession at that time of the later claimed subject matter, rather than the presence or absence of literal support in the specification for the claim language. The content of the drawings may also be considered in determining compliance with the written description requirement. See Vas-Cath Inc. v. Mahurkar, 935 F.2d 1555, 1562-63, 19 USPQ2d 1111, 1116 (Fed. Cir. 1991) and In re Kaslow, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983). Additionally, original claims constitute their own description, with later added claims of similar scope and wording being described thereby. See In re Koller, 613 F.2d 819, 823-24, 204 USPQ 702, 706 (CCPA 1980).



In this lack of description rejection (answer, page 7), the examiner focuses upon the same claim language that was at issue in the indefiniteness rejection, supra, and that we determined to be definite in meaning. An analysis of the content of claims 1, 11, 16, and 8, as originally filed with the present application, reveals for the most part word for word correspondence with the claims now on appeal, as was pointed out by appellant (main brief, pages 9 through 11). Thus, it is quite apparent to this panel of the Board that the language in the claims now under rejection has the requisite descriptive basis in the original disclosure. For the preceding reasons, the examiner's lack of description rejection is not well founded and cannot be sustained.<sup>7</sup>

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<sup>7</sup> The examiner's detailed discussion in the objection to the specification (answer, pages 5 and 6), as noted by appellant in the main and reply briefs, is not commensurate with the language of the claims on appeal in that it is focused upon what is perceived be an inadequacy in the specification as to how the "best or strongest echo" is determined. As an aside, we simply note appellant's indication (specification, page 7) that maximum amplitude echoes are selected as true surface echoes with the present invention, and make reference to the knowledge and skill in the art of using storage registers and a series of counters that collectively address elapsed time (time delay) and echo amplitude parameters, as revealed by Trudeau.

Enablement

We do not sustain the rejection of claims 1 through 5, 8, 11, 14, 16, 18, 19, and 21 under 35 U.S.C. § 112, first paragraph, as containing subject matter which is not enabled by the specification.

To be enabling under the first paragraph of 35 U.S.C. § 112, a disclosure must contain a description that enables one skilled in the art to make and use the claimed invention. That some experimentation is necessary does not preclude enablement; the amount of experimentation, however, must not be unduly extensive. See Atlas Powder Co. v. E.I. duPont de Nemours & Co., 750 F.2d 1569, 1576, 224 USPQ 409, 413 (Fed. Cir. 1984). As the court in In re Gaubert, 524 F.2d 1222, 1226, 187 USPQ 664, 667 (CCPA 1975) stated:

To satisfy § 112, the specification disclosure must be sufficiently complete to enable one of ordinary skill in the art to make the invention without undue experimentation, although the need for a minimum amount of experimentation is not fatal \* \* \*. Enablement is the criterion, and every detail need not be set forth in the written specification if the skill in the art is such that the disclosure enables one to make the invention.

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A relevant inquiry is whether the scope of enablement is commensurate with the scope of the claimed subject matter. See In re Angstadt, 537 F.2d 498, 501, 190 USPQ 214, 217 (CCPA 1976).

According to the examiner, as explained in the enablement rejection (answer, page 7), the claimed means for determining liquid level height based upon echo amplitude and time delay between emissions and detection of echoes is not clearly set forth in the specification such that one of skill in the art would be able to make and use the invention.<sup>8</sup>

Once again, we refer to our earlier review of the claim language at issue in this rejection, which we determined to be definite and described in the underlying disclosure.

As we see it, the scope of enablement found in the present application is commensurate with the scope of the subject matter

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<sup>8</sup> In this enablement rejection, the examiner again refers to the objection to the specification which, as earlier indicated, is not directed to the claimed subject matter but to the matter of determining the best or strongest echo. We make reference herein to our earlier commentary on the subject of the objection, and point out that the matter raised therein is not dispositive of the enablement issue.

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of the claims on appeal, such that those skilled in the art of ultrasonic fluid level sensing would be able to make and use the claimed invention, i.e., the invention, as claimed, is enabled by appellant's disclosure. The prior art background discussion in appellant's application, appellant's description of the present invention in the specification, and the incorporated in-depth disclosure of Trudeau, collectively as a whole, convince us that those having skill in the art of ultrasonic fluid level sensing would be able to make and use the now claimed invention, without having to undertake any undue experimentation.

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In summary, this panel of the board has not sustained any of the rejections on appeal.

The decision of the examiner is reversed.

REVERSED

IRWIN CHARLES COHEN	)	
Administrative Patent Judge	)	
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	)	
	)	
	)	BOARD OF PATENT
LEE E. BARRETT	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
	)	
	)	
	)	
MURRIEL E. CRAWFORD	)	
Administrative Patent Judge	)	

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